

REMARKS

I. Introduction

Claims 1-6 are currently pending in this application. Claim 6 has been amended, support for which is found throughout the specification, for example on in paragraph [0009] and FIG. 1. No new matter has been added.

In view of the foregoing amendments and the following remarks, it is respectfully submitted that the claims are allowable and the application is in condition for allowance.

II. Claim rejections under 35 U.S.C. § 102/103

Claim 6 was rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly being unpatentable over Jansen (US 2002/0127362). Furthermore, claim 6 was rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly being unpatentable over Yamazaki (US 6,632,538). Applicants disagree with the rejections.

However, in an effort to expedite prosecution, claim 6 has been amended and now recites, in pertinent part, **“a second sheet layer located in the peripheral portion between said first sheet layer and said third sheet layer and joined to the two sheet layers.”** This configuration is shown, for example, in FIG. 1, which shows a second sheet layer 3 located in the peripheral portion between the first sheet layer 1 and the third sheet layer 4 and joined to the two sheet layers.

At a minimum, neither Jansen nor Yamazaki teach or suggest a thin film for a package of an alkaline battery having a configuration in which a second sheet layer is located in the peripheral portion between a first sheet layer and a third sheet layer and joined to the two sheet layers.

Moreover, the present invention having the configuration as recited in claim 1 effectively discharges hydrogen gas generated inside a battery out of the battery through the route comprising the polymer films having hydrogen gas permeability disposed on the internal surface side of each of the first and third sheet layers and the polymer film having hydrogen gas permeability included in the second sheet layer.

In the joint boundaries between sheet layers, since the hydrogen gas permeating material has been heat-cured or heat-hardened due to heat welding, the permeation of the hydrogen gas tends to be delayed as disclosed in [0012] of the present specification.

In view of the above, the present invention employs the second sheet layer in order to increase the area that can contribute to the gas permeation, and thus can effectively perform the permeation of hydrogen gas, as compared with when the first sheet layer and the third sheet layer are directly joined together.

In an air battery sealed with a polymer film having gas barrier properties, it is important to allow the hydrogen gas generated inside the battery to effectively permeate outside in order to prevent the swelling of the battery.

Therefore it is clear that neither Jansen nor Yamazaki teach or suggest a configuration as recited in amended claim 6, which allows the hydrogen gas generated inside the battery to permeate outside in an effective manner.

Accordingly it is respectfully submitted that claim 6 is allowable over the cited prior art references.

III. Claim rejections under 35 U.S.C. § 103(a)

Claims 1-5 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Matsumoto (JP 63-138668) in view of Jansen (US 2002/0127362). Applicants respectfully disagree.

At a minimum, none of the cited prior art references teach or suggest a configuration as recited in claim 1, in which,

the first sheet layer, second sheet layer, and third sheet layer each comprise of a thin film formed by stacking at least an alkali-resistant polymer film having hydrogen gas permeability and a polymer film having gas barrier properties; and in each of the first sheet layer and the third sheet layer, the polymer film having hydrogen gas permeability is disposed on the internal surface side.

In contrast to the subject matter recited in claim 1, Matsumoto discloses, as shown in FIGS. 1-3 and described in the abstract, an air battery configured such that the power generating element is formed by stacking a negative electrode 5, a separator 4, a positive electrode catalyst layer 3d, and a film 3a with electrical conductivity, oxygen permeability, and water repellency, and a diffusion paper 2. The case of Matsumoto comprises a negative electrode current collector 6 (i.e., the third sheet layer), a cover 1b (i.e., the first sheet layer having an air hole), and a sealing member (i.e., the second sheet layer) located in the peripheral portion between the current collector 6 and the cover 1b.

However, Matsumoto is silent as to allowing the hydrogen gas generated inside the battery to permeate outside. Furthermore, Matsumoto discloses that the cover 1b has oxygen gas permeability, but Matsumoto does not teach or suggest that the negative electrode current collector 6 and the sealing member are gas permeable.

Importantly, Matsumoto does not teach or suggest a route for allowing hydrogen gas generated inside the battery to permeate outside, as provided in the present invention as recited in claim 1.

Moreover, Jansen fails to cure this deficiency in Matsumoto, as Jansen also fails to teach or suggest a configuration that allows hydrogen gas generated inside the battery to permeate outside the battery in an effective manner. On page 3 of the office action mailed January 8, 2010, the Examiner takes the position that because Jansen teaches polyethylene and polypropylene films that Jansen discloses a battery housing hydrogen gas permeability. However, it is the structural configuration of battery package as recited in claim 1, as well as the materials used, that achieve the improved hydrogen discharge of the present invention. As such, a person having ordinary skill in the art would not have found it obvious based on Matsumoto and Jansen to achieve the configuration as recited in claim 1.

Accordingly, it is respectfully submitted that claim 1 is allowable over the cited prior art references. Furthermore, claims 2-5 depend from and further define the subject matter of claim 1 and therefore are also allowable.

IV. Conclusion

In view of the above amendments and remarks, Applicants respectfully submit that the claims are allowable, this application should be allowed and the passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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